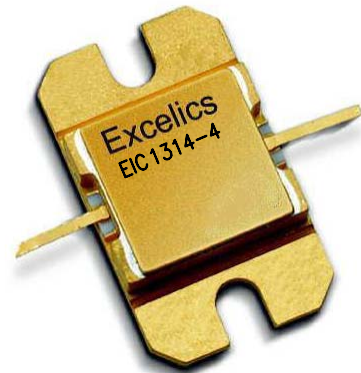


FEATURES

- 13.75 –14.50GHz Bandwidth
- Input/Output Impedance Matched to 50 Ohms
- +36.0 dBm Output Power at 1dB Compression
- 6.0 dB Power Gain at 1dB Compression
- 25% Power Added Efficiency
- -45 dBc IM3 at $P_o = 25.0$ dBm SCL
- 100% Tested for DC, RF, and R_{TH}



ELECTRICAL CHARACTERISTICS ($T_a = 25^\circ\text{C}$)



Caution! ESD sensitive device.

SYMBOL	PARAMETERS/TEST CONDITIONS ¹	MIN	TYP	MAX	UNITS
P_{1dB}	Output Power at 1dB Compression $f = 13.75\text{-}14.50\text{GHz}$ $V_{DS} = 10\text{ V}, I_{DSQ} \approx 1100\text{mA}$	35.5	36.0		dBm
G_{1dB}	Gain at 1dB Compression $f = 13.75\text{-}14.50\text{GHz}$ $V_{DS} = 10\text{ V}, I_{DSQ} \approx 1100\text{mA}$	5.0	6.0		dB
ΔG	Gain Flatness $f = 13.75\text{-}14.50\text{GHz}$ $V_{DS} = 10\text{ V}, I_{DSQ} \approx 1100\text{mA}$			± 0.6	dB
PAE	Power Added Efficiency at 1dB Compression $V_{DS} = 10\text{ V}, I_{DSQ} \approx 1100\text{mA}$ $f = 13.75\text{-}14.50\text{GHz}$		25		%
I_{d1dB}	Drain Current at 1dB Compression $f = 13.75\text{-}14.50\text{GHz}$		1100	1300	mA
IM3	Output 3rd Order Intermodulation Distortion $\Delta f = 10\text{ MHz}$ 2-Tone Test; $P_{out} = 25.0\text{ dBm S.C.L.}^2$ $V_{DS} = 10\text{ V}, I_{DSQ} \approx 65\% IDSS$ $f = 14.50\text{GHz}$	-42	-45		dBc
I_{DSS}	Saturated Drain Current $V_{DS} = 3\text{ V}, V_{GS} = 0\text{ V}$		2080	2880	mA
V_P	Pinch-off Voltage $V_{DS} = 3\text{ V}, I_{DS} = 20\text{ mA}$		-2.5	-4.0	V
R_{TH}	Thermal Resistance ³		5.5	6.0	$^\circ\text{C/W}$

Note: 1. Tested with 100 Ohm gate resistor.
2. S.C.L. = Single Carrier Level.
3. Overall R_{th} depends on case mounting.

ABSOLUTE MAXIMUM RATING FOR EFE

SYMBOLS	PARAMETERS	ABSOLUTE ¹	CONTINUOUS ²
Vds	Drain-Source Voltage	15V	10V
Vgs	Gate-Source Voltage	-5V	-4V
Igf	Forward Gate Current	48mA	14.4mA
Igr	Reverse Gate Current	-9.6mA	-2.4mA
Pin	Input Power	35.5dBm	@ 3dB Compression
Tch	Channel Temperature	175C	175C
Tstg	Storage Temperature	-65C to +175C	-65C to +175C
Pt	Total Power Dissipation	25W	25W

Note: 1. Exceeding any of the above ratings may result in permanent damage.
2. Exceeding any of the above ratings may reduce MTTF below design goals.

Specifications are subject to change without notice.



EIC1314-4

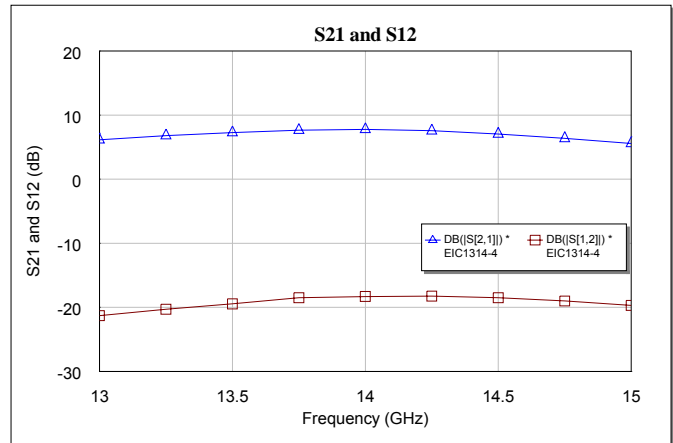
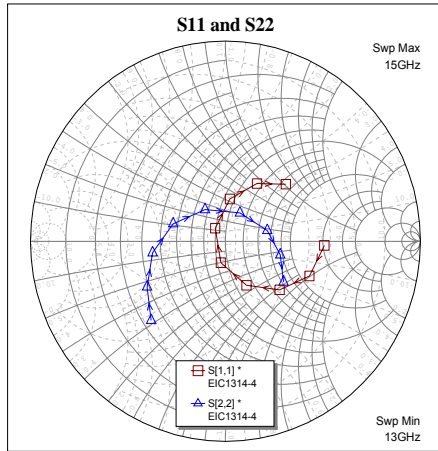
UPDATED 08/21/2007

13.75-14.50GHz 4-Watt Internally-Matched Power FET

PERFORMANCE DATA

Typical S-Parameters (T= 25°C, 50Ω system, de-embedded to edge of package)

$V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 1100\text{mA}$



FREQ (GHz)	--- S11 ---		--- S21 ---		--- S12 ---		--- S22 ---	
	MAG	ANG	MAG	ANG	MAG	ANG	MAG	ANG
13.0	0.5078	-2.28	2.0327	-117.68	0.0863	-144.55	0.5488	-133.93
13.2	0.4776	-17.96	2.1494	-132.66	0.095	-160.68	0.4743	-146.87
13.4	0.4118	-33.24	2.2575	-148.8	0.1036	-176.01	0.4121	-161.98
13.6	0.3207	-49.12	2.3651	-165.3	0.1096	167.92	0.3481	179.95
13.8	0.2203	-70.57	2.431	176.6	0.1188	150.43	0.2602	155.82
14.0	0.1094	-102.37	2.4478	158.24	0.1217	132.03	0.1895	123.3
14.2	0.0627	152.39	2.4123	139.92	0.1227	115.1	0.1576	76.56
14.4	0.1622	96.78	2.3192	121.93	0.1196	96.75	0.1927	30.27
14.6	0.2642	73.83	2.1858	104.48	0.1158	80.23	0.2491	1.19
14.8	0.353	56.65	2.0523	88.18	0.1109	63.47	0.3031	-18.21
15.0	0.421	42.58	1.9018	72.39	0.1037	48.43	0.3615	-34.26

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Excelics Semiconductor, Inc. 310 De Guigne Drive, Sunnyvale, CA 94085
 Phone: 408-737-1711 Fax: 408-737-1868 Web: www.excelics.com

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 Revised October 2007

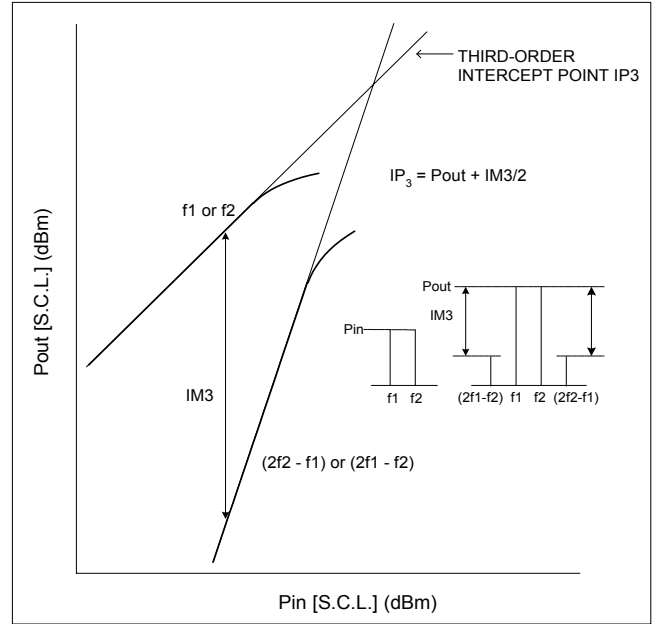
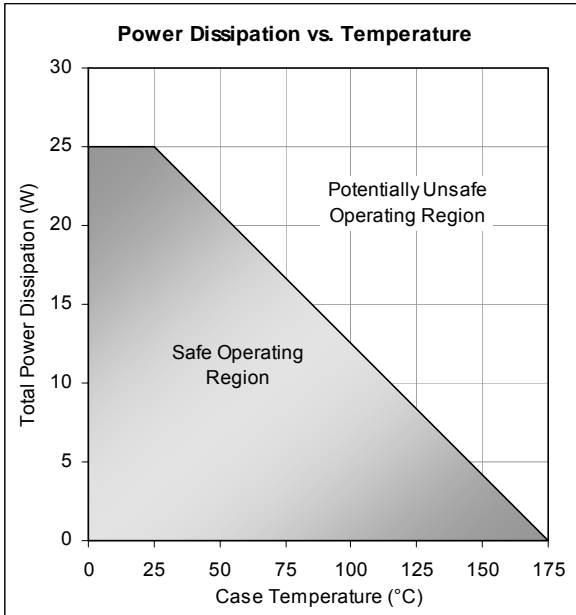


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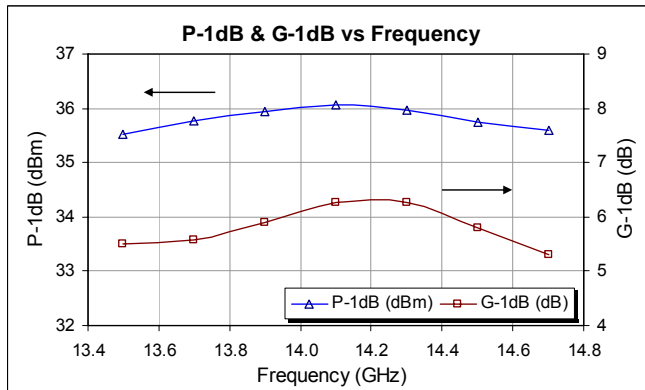
UPDATED 08/21/2007

13.75-14.50GHz 4-Watt Internally-Matched Power FET

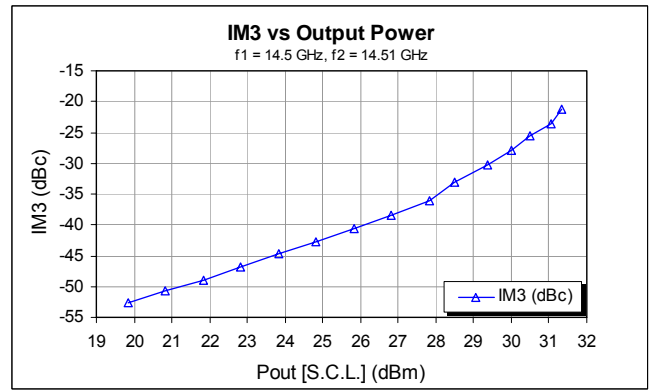
Power De-rating Curve and IM3 Definition



Typical Power Data ($V_{DS} = 10\text{ V}$, $I_{DSQ} = 1100\text{ mA}$)



Typical IM3 Data ($V_{DS} = 10\text{ V}$, $I_{DSQ} \approx 65\% IDSS$)



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EIC1314-4

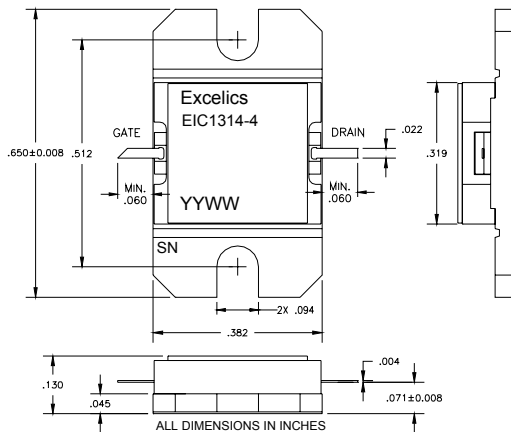
UPDATED 08/21/2007

13.75-14.50GHz 4-Watt Internally-Matched Power FET

PACKAGES OUTLINE

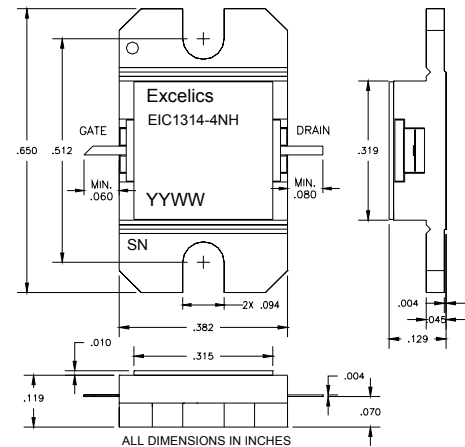
Dimensions in inches, Tolerance $\pm .005$ unless otherwise specified

EIC1314-4 (Hermetic)



Caution! ESD sensitive device.

EIC1314-4NH (Non-Hermetic)



Caution! ESD sensitive device.

ORDERING INFORMATION

Part Number	Packages	Grade ¹	f _{Test} (GHz)	P _{1dB} (min)	IM ₃ (min) ²
EIC1314-4	Hermetic	Industrial	13.75-14.50GHz	35.5	-42
EIC1314-4NH	Non-Hermetic	Industrial	13.75-14.50GHz	35.5	-42

- Notes: 1. Contact factory for military and hi-rel grades.
2. Exact test conditions are specified in "Electrical Characteristics" table.

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